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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/825,840	04/15/2004	Lawrence E. Gibson	200308693-1	9449

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HEWLETT PACKARD COMPANY
P O BOX 272400, 3404 E. HARMONY ROAD
INTELLECTUAL PROPERTY ADMINISTRATION
FORT COLLINS, CO 80527-2400

EXAMINER

MIGGINS, MICHAEL C

ART UNIT	PAPER NUMBER
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1794

NOTIFICATION DATE	DELIVERY MODE
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07/14/2008

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

JERRY.SHORMA@HP.COM
mkraft@hp.com
ipa.mail@hp.com

Office Action Summary	Application No. 10/825,840	Applicant(s) GIBSON ET AL.	
	Examiner Michael C. Miggins	Art Unit 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 April 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-50 is/are pending in the application.
- 4a) Of the above claim(s) 43-50 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-27 and 29-42 is/are rejected.
- 7) ☒ Claim(s) 28 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

REJECTIONS WITHDRAWN

1. All of the double patenting 35 USC 112, 102 and 103 rejections set forth in the non-final rejection of 1/15/2008, pages 2-12, paragraphs 3-16 are withdrawn.

REJECTIONS REPEATED

2. The objection to claim 28 as being dependent upon a rejected base claim but allowable in independent form set forth in the non-final rejection of 6/26/07, pages 11-12, paragraph 19 is repeated for the reasons of record.

NEW REJECTIONS

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-3, 5-6, 8-13, 15-18, 26, 29-31 and 39, 41-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Coulman (US 6045215) in view of Lehmann et al. (US 3860541).

Coulman discloses a fluid ejection device (10 from Fig. 1), comprising a substrate (82 from Fig. 1) having means for ejecting a fluid (86 from Fig. 1, column 12, line 49

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through column 13, line 10), means for supporting said substrate (12 from Fig. 1), and means for adhering said substrate to said means for supporting said substrate (column 24, line 32 through column 25, line 13), further comprising means for forming a chamber (30 from Fig. 1) and means for forming a nozzle (108 from Fig. 1) and further comprising means for performing logic on said substrate (column 12, line 49 through column 13, line 10). Coulman also discloses that the adhesive used to bond substrate 82 to housing 12 is an epoxy resin (column 24, line 32 through column 25, line 13, no reference numeral is given for the adhesive) since it is specifically stated.

housing (e.g. housing 12 shown in FIG. 1) or operatively connected via one or more tubular ink transfer conduits to a remotely-positioned ink storage vessel (not shown). Regarding use of the printhead 80 in connection with the cartridge 10, assembly may be achieved as discussed above or in any other manner wherein the printhead 80 is secured to the cartridge 10 so that the printhead 80 is in fluid communication with the ink retaining compartment 30 in the housing 12. This may be accomplished by the use of conventional adhesive materials (e.g. epoxy resin compounds known in the art for this purpose) which are applied to (1) the housing 12; and (2) one or more of the substrate 82, flexible circuit member 118, and orifice plate 104 as needed in accordance with the particular cartridge 10 under consideration.

Coulman fails to disclose a one part epoxy adhesive which comprises an epoxy resin having a polyglycidyl ether of a polyhydric phenol and a solid cycloaliphatic amine curing agent.

Lehman discloses a one part epoxy (column 1, lines 4-8, column 4, lines 45-46) adhesive (column 3, lines 26-38) which comprises an epoxy resin having a polyglycidyl ether of a polyhydric phenol (column 1, lines 56-68) and a solid cycloaliphatic amine curing agent (column 2, lines 33-56) for the purpose of providing improved curing times at lower temperatures, improved tensile shear strength and improved storage (column 1, lines 38-48, column 4, lines 45-56, Table 1).

Therefore it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to have provided a one part epoxy adhesive which comprises an epoxy resin having a polyglycidyl ether of a polyhydric phenol and a solid cycloaliphatic amine curing agent as the epoxy adhesive in Coulman in order to provide improved curing times at lower temperatures, improved tensile shear strength and improved storage as taught or suggested by Lehman.

With regard to the dependent claims Coulman discloses a nozzle proximate to the fluid ejector (108 and 86 from Fig. 1, column 12, line 49 through column 13, line 10), thermal resistor, piezoelectric actuator (column 11, lines 13-38), reservoir fluidically connected to fluid ejector (32 from Fig. 1), fluid definition layer (32 from Fig. 1), a chamber and orifice defining a bore (30 and 54 respectively from Fig. 1), fluid inlet channels and coupled to the chamber (column 12, line 49 through column 13, line 10), a device body coupled to the substrate carrier (34 and 50 respectively from Fig. 1), a reservoir (32 from Fig. 1) coupled to the substrate which is coupled to nozzle (108 from Fig. 1), a device on the substrate an electrical trace coupling the device to the fluid ejector (demultiplexer, column 12, line 49 through column 13, line 10), further comprises a transistor (column 12, line 49 through column 13, line 10).

With regard to the dependent claims Lehmann discloses epoxy adhesive further comprises a liquid aromatic amine curing agent (column 2, lines 16-46), wherein the glycidyl ether is bisphenol A (column 1, lines 56-68), wherein the cycloaliphatic amine curing agent is epoxy modified (column 2, lines 33-46), wherein the curing agent can be 4,4 diamino diphenyl methane (column 2, lines 16-27).

5. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Coulman (US 6045215) in view of Lehmann et al. (US 3860541), as applied to claims 1-3, 5-6, 8-13, 15-18, 26, 29-31 and 39, 41-42 above, and further in view of Petrie (US 4120913).

Neither Coulman nor Lehmann disclose that the glycidyl ether is Bisphenol F.

Petrie discloses the use of Bisphenol F (column 3, lines 1-8) in epoxy adhesives (column 1, lines 5-18) for the purpose of providing long shelf life, low temperature curing and improved joint shear strengths (column 1, lines 39-48).

6. Claims 4 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Coulman (US 6045215) in view of Lehmann et al. (US 3860541), as applied to claims 1-3, 5-6, 8-13, 15-18, 26, 29-31 and 39, 41-42 above, and further in view of Silverbrook (US 6019457).

Coulman fails to disclose wherein said means for ejecting said fluid further comprises means for ejecting essentially a drop of said fluid and the volume of said fluid is in the range of from about 5 femto-liters to about 900 pico-liters.

Silverbrook discloses wherein said means for ejecting said fluid further comprises means for ejecting essentially a drop of said fluid and the volume of said fluid is in the range of from about 5 femto-liters to about 900 pico-liters (column 17, lines 14-21) for the purpose of improving resolution.

Therefore it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to have provided said means for ejecting said fluid further comprises means for ejecting essentially a drop of said fluid and the volume of said fluid is in the range of from about 5 femto-liters to about 900 pico-liters in the fluid ejection device of Coulman in order to improve resolution as taught or suggested by Silverbrook.

7. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Coulman (US 6045215) in view of Lehmann et al. (US 3860541), as applied to claims 1-3, 5-6, 8-13, 15-18, 26, 29-31 and 39, 41-42 above, and further in view of Boyd (US 3874493).

Coulman fails to disclose a substrate carrier comprising a ceramic chip.

Boyd discloses a substrate carrier comprising a ceramic chip in a printer (column 13, lines 32-52) for the purpose of providing lower costs and/or employing the use of a dot matrix-type ejector.

Therefore it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to have provided a substrate carrier comprising a ceramic chip in order to provide lower costs and/or employ the use of a dot matrix-type ejector as taught or suggested by Boyd.

8. Claims 19-21 and 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Coulman (US 6045215) in view of Lehmann et al. (US 3860541), as

applied to claims 1-3, 5-6, 8-13, 15-18, 26, 29-31 and 39, 41-42 above, and further in view of Feinn (US 6325491).

The one part epoxy is disclosed in Sbokal as discussed above.

Coulman fails to disclose a substrate bond pad and electrical interconnection electrically coupled to the substrate encapsulated by an adhesive, wherein the adhesive forms a moat-fill adhesive between the cover and the substrate, wherein the adhesive forms a glob top substantially encapsulating the electronic device, wherein the adhesive forms an underfill between the substrate carrier and electrical conductor.

Feinn discloses a substrate bond pad and electrical interconnection electrically coupled to the substrate encapsulated by an adhesive (column 8, line 42 through column 9, lines 1-8), wherein the adhesive forms a moat-fill adhesive between the cover and the substrate (Figs. 5-6), wherein the adhesive forms a glob top substantially encapsulating the electronic device, wherein the adhesive forms an underfill between the substrate carrier and electrical conductor (Figs. 4-7) (column 5, line 60 through column 6, line 8, column 6, lines 45-67) for the purpose of improved adhesion of the parts and preventing short circuits.

Therefore it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to have provided a substrate bond pad and electrical interconnection electrically coupled to the substrate encapsulated by an adhesive, wherein the adhesive forms a moat-fill adhesive between the cover and the substrate, wherein the adhesive forms a glob top substantially encapsulating the electronic device, wherein the adhesive forms an underfill between the substrate carrier and electrical

conductor in the fluid ejection device of Coulman in order to provide improved adhesion of the parts and preventing short circuits as taught or suggested by Feinn.

9. Claims 22-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Coulman (US 6045215) in view of Lehmann et al. (US 3860541) and Feinn (US 6325491), as applied to claims 19-21 and 24-25 above, and further in view of Childers (US 6130695).

Coulman fails to disclose a memory device having at least one parameter of ejectable fluid coupled and communicable to a controller.

Childers discloses a memory device having at least one parameter of ejectable fluid coupled and communicable to a controller (column 14, lines 38-67) in an ink jet printer so that ink containers having a variety of ink volumes may be used (column 2, lines 49-61).

Therefore it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to have provided a memory device having at least one parameter of ejectable fluid coupled and communicable to a controller in the fluid ejection device of Coulman so that ink containers having a variety of ink volumes may be used thus lowering costs as taught or suggested by Childers.

10. Claims 32-33 and 37-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Coulman (US 6045215) in view of Lehmann et al. (US 3860541), as

applied to claims 1-3, 5-6, 8-13, 15-18, 26, 29-31 and 39, 41-42 above, and further in view of Goel (US 4728384).

Coulman fails to disclose the adhesive containing a thixotrope of fumed silica and fillers of talc.

Goel discloses an epoxy adhesive (column 1, lines 5-12) comprising a thixotrope of fumed silica and fillers of talc (column 3, lines 20-43) in order to prevent sagging.

Therefore it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to have provided the adhesive containing a thixotrope of fumed silica and fillers of talc in the fluid ejection device of Coulman in order to prevent sagging of the adhesive as taught or suggested by Goel.

11. Claims 34-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Coulman (US 6045215) in view of Lehmann et al. (US 3860541), as applied to claims 1-3, 5-6, 8-13, 15-18, 26, 29-31 and 39, 41-42 above, and further in view of Chapman (US 5013383).

Coulman fails to disclose the epoxy adhesive further comprising a silane coupling agent between 0.5 and 2.5 weight percent.

Chapman disclose an epoxy adhesive further comprising a silane coupling agent between 0.5 and 2.5 weight percent (column 2, lines 14-27) in order to improve adhesion.

Therefore it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to have provided an epoxy adhesive further comprising

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a silane coupling agent between 0.5 and 2.5 weight percent in the fluid ejection device of Coulman in order to improve adhesion as taught or suggested by Chapman.

12. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Coulman (US 6045215) in view of Lehmann et al. (US 3860541), as applied to claims 1-3, 5-6, 8-13, 15-18, 26, 29-31 and 39, 41-42 above, and further in view of Baker et al. (US 6299272).

Coulman fails to disclose wherein said fluid ejector actuator is an acoustic actuator.

Baker discloses wherein said fluid ejector actuator is an acoustic actuator (column 1, lines 6-11) in order to control drop size and velocity.

Therefore it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to have provided wherein said fluid ejector actuator is an acoustic actuator in Coulman in order to control drop size and velocity as taught or suggested by Baker.

Double Patenting

13. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double

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patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

14. Claims 1-42 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over the claims 1-31 of U.S. Patent No. 7,063,413 in view of Takago (US 4291144).

Claims 1-31 of US Patent 7,063,413 recite a fluid ejection cartridge comprising a substrate carrier having a substrate receiving surface, a substrate having at least one fluid actuator disposed on said substrate and a two-part adhesive disposed between said substrate and said substrate receiving surface, wherein said two-part adhesive comprises an epoxy resin having a polyglycidyl ether of a polyhydric phenol and a solid cyclohexyl amine curing agent since 3-aminomethyl-3,5,5-trimethyl-1-cyclohexyl amine is recited. The adhesive obviously bonds the carrier and substrate since it is disposed between them and is thus a means for adhering the carrier and the substrate.

The difference between instant claims 1-42 and claims 1-31 of US Patent 7,063,413 is that the instant claims 1-42 recite a one-part epoxy adhesive instead of a two-part epoxy adhesive.

Takago discloses a one-part epoxy adhesive (column 1, line 64 through column 2, line 2) in order to avoid the problems of two part epoxy adhesives (column 1, lines 24-34) and provide an epoxy adhesive which is easily stored and curable without heating (column 1, line 64 through column 2, line 2).

It would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to have provided a one-part epoxy adhesive in the invention recited in claims 1-31 of US Patent 7,063,413 in order to in order to avoid the problems of two part epoxy adhesives and provide an epoxy adhesive which is easily stored and curable without heating as taught or suggested by Takago.

ANSWERS TO APPLICANT'S ARGUMENTS

15. Applicant's arguments of 4/15/08 have been considered but are moot in view of the new grounds for rejection set forth above.

Conclusion

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Lehmann et al. (US 4117038) is cited as relevant prior art for its disclosure of fillers.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael C. Miggins whose telephone number is 571-272-1494. The examiner can normally be reached on 1:00-10:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached on 571-272-3186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Michael C. Miggins/
Primary Examiner, Art Unit 1794

MCM
July 7, 2008